

ART. I.—*The Phanerogamia of the Mitta Mitta Source Basin and their Habitats.*

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[Read 20th April, 1882.]

IN my recent paper on the topography of the Australian Alps, in outlining proposed physiographical researches in the Omeo district, I intimated my intention to submit a subsequent paper on the geological structure and botany of the Mitta Mitta Source Basin (there topographically described). I regret not having been able to complete observations on the geological structure of this area sufficient to enable me to correctly delineate it, but in the meantime submit the following description of the phanerogamia, or flowering plants, together with a collection of dried specimens representing the different orders most prevalent.

A glance at the map of Victoria will show that the Mitta Mitta Source Basin is bounded by watershed lines ascending to the highest peaks and plateau in the colony. It consequently embraces hypsometrical zones of vegetation, rising from the gigantic eucalypts, prolific amid the shaded slopes of our Victorian Cordillera, through dense masses of arboreous shrubs clothing the moist head of gullies at higher elevations, and again, through undulating uplands covered with patches of heath-like plants, dwarfed arboreous shrubs, and open pasture lands to the grassy moorlands of the highest snow-clad plateaux.

In submitting the following descriptions of native flowering plants, I desire to state that they do not include the whole of the phanerogamia of this portion of our Australian Alps, but simply represent a collection made by me, according as time and circumstances permitted during the past three years. I have also restricted my remarks to species verified by our eminent botanist, Baron von Müller,

to whose kindness, indeed, I am indebted for help in the matter of systematic classification. Among numerous questions of phytological importance, there is perhaps none more interesting than that which relates to the effects of defined geological formations on the growth of plants, and more especially on the evolution of varieties. In order to contribute my quota towards a solution of the question, which may be used for comparisonal purposes by those having a larger experience and more extensive phytochemical knowledge, I have given the geological formation upon which I have found each species to be most prolific. So far as my limited observations would warrant me in forming an opinion, I would suggest meteorological conditions as exercising a more dominating influence over the growth of plants, and in the evolution of varieties, than has hitherto, so far as I am aware, been recognised. Undoubtedly, those soils decomposed from the great rock formations richest in the alkaline salts, also carbonic acid and ammoniacal compounds (from which plants derive a great part of their nourishment), greatly affect the growth of species; but whether such chemical constituents evolve varieties is, I think, quite another question. How far the phenomena of insect cross fertilisation may be assumed as a factor I cannot venture an opinion; but it is extremely probable that insect life is subordinated to climatic influences, so that altitudinal differences and hygrometric conditions are really important factors to be considered in estimating the value of geological or entomological agencies.

However, whether meteorological conditions, geological formation, or entomological considerations are paramount, or whether each are modified by the other, there can be no doubt that the subject is one of great scientific interest, and can only be settled by patient collection, comparison, and analysis. In this paper I have limited my remarks to the dicotyledonous plants only, reserving the monocotyledonæ and the cryptogamia for a subsequent paper.

Taking the area as a whole, it may be said to consist of fine open pasture lands, the more dense arboreous vegetation being confined to the Dividing Range, and the shrubs to its shaded gullies and southern slopes of prominent spurs, and the heath-like plants to open, sunny northern slopes. Out of the included 670,000 acres within the Mitta Mitta Source Basin, fully 400,000 are admirably adapted for pastoral pursuits, and there is every reason to believe that

the agricultural and horticultural products of European extra-tropical countries may be successfully and profitably cultivated amid our sub-Alpine elevations; in fact, the only barrier at present existing is that of transit to a market; a good road to the seaboard, distant about sixty miles, being a desideratum.

As settlement progressed in these regions, a number of herbaceous plants were introduced; these, however, I have not included in this list. The principal rock formations within the area under consideration consist of Silurian and altered Silurian—*i.e.*, metamorphic schists, gneiss, &c., including many varieties of quartz porphyry, granite porphyry, &c., basaltic table-lands, numerous igneous dykes intersecting and intruding upon the metamorphic schists; also patches of Middle Devonian sandstone and limestone, with deposits of tertiary gravels along the courses of streams—in fact, what my friend, Mr. A. W. Howitt, has described as the “great paleozoic rock foundations of North Gippsland,” intruded upon by subsequent Plutonic masses. The following arrangement is that of Baron von Müller:—

DICOTYLEDONÆ.

CHORIPETALEÆ-HYPOGYNÆ.

Natural Order—

1. Ranunculaceæ
2. Dilleniaceæ
3. Magnoliaceæ
4. Monimiaceæ
5. Lauraceæ
6. Violaceæ
7. Pittosporaceæ
8. Droseraceæ
9. Polygaleæ
10. Rutaceæ
11. Lineæ
12. Geraniaceæ
13. Sterculeaceæ
14. Urticaceæ
15. Casuarineæ
16. Sapindaceæ
17. Stackhousiæ
18. Caryophylleæ

C. PERIGYNÆ.

Natural Order—

19. Leguminosæ
20. Rosaceæ
21. Onagraceæ
22. Haloragaceæ
23. Myrtaceæ
24. Rhamnaceæ
25. Araliaceæ
26. Umbellifereæ.

SYNPETALEÆ PERIGYNÆ.

Natural Order—

- 27. Santalaceæ
- 28. Proteaceæ
- 29. Thymeleæ
- 30. Rubiaceæ
- 31. Compositæ
- 32. Campanulaceæ
- 33. Stylideæ, or Can-
dolleaceæ
- 34. Goodeniaceæ

S. HYPOGYNÆ.

Natural Order—

- 35. Gentianeæ
- 36. Scrophularinæ
- 37. Asperfoleïæ
- 38. Labiatæ
- 39. Epacridaceæ
- 40. Ericaceæ

40 natural orders, embracing 174 species.

I.—CHORIPETALEÆ-HYPOGYNÆ.

No. 1—RANUNCULACEÆ ().

Genera—Clematis and Ranunculus.

1. *C. Aristata* (R. Br.).—Clothing the tops of the highest trees amid our shaded sub-Alpine slopes with a canopy of snow-white blossoms; in all soils; it is apparently restricted to 4800 feet above sea-level.
2. *R. Lappaceus* (D. C.), “common buttercup.”—Abundant on metamorphic schists around Omeo; it ascends to Alpine heights; all soils.
3. *R. Gunnianus* (Hask.).—On sub-Alpine slopes and terraces; all soils, up to 5000 feet.
4. *R. Millani* (F. v. M.).—Along source runnels of Bogong High Plains. Basaltic formation.
5. *R. Muelleri* (Bent.).—At head of Bundara River, near Mount Cope; 6015 feet; metamorphic soils.
6. *R. anemoneus* (F. v. M.).—At heads of Big River, on Silurian and granitic soils. I have not seen any species below 6000 feet.

No. 2—DILLENACEÆ ().

Genus—Hibbertia.

1. *H. diffusa* (R. Br.).—Lower undulating metamorphic ranges, near Omeo; not ascending above 4000 feet.
2. *H. serpillifolia* (R. Br.).—On the sub-Alpine slopes, exposed rocky ridges; Silurian and altered Silurian soils; up to 5000 feet.

No. 3—MAGNOLIACEÆ ().

Genus—*Drimys*.

1. *D. aromatica* (R. et G. F.), "native pepper tree."—Forms amid the shaded slopes of the Dividing Range, on Silurian soils an arboreous shrub attaining a height of 12 feet; on the higher basaltic plateau (5000 feet) it becomes fruticose, more gregarious, and has more aromatic and pungently acrid properties; it has been used for flavouring preserves with success at Omeo.

No. 4—MONIMIEÆ ().

Genera—*Hedycaryi* and *Atherosperma*.

1. *H. Cunninghamsii* (Tul.).—On the Dividing Range, at the head of Livingstone Creek; on Silurian soil; 4000 feet.
2. *A. moschata*, "native sassafras" (Lab.).—Forms a dense shrub along the upper courses of the Gibbo River; Silurian formation 3800 feet; frequently attains a height of 40 feet, its bark is laxative, aromatic, and is used by the splitters for flavouring tea.

No. 5—LAURACEÆ ().

Genus—*Cassytha*.

1. *C. melantha* (R. Br.), "native scrub vine."—Parasitic; on eastern watershed of Livingstone Creek; does not ascend above 5000 feet.

No. 6—VIOLACEÆ (De Candolle).

Genera—*Viola* and *Hymenanthera*.

1. *V. hederacea* (Labill.).—Common during early summer on the metamorphic schists around Omeo, up to 4000 feet.
2. *V. betonicifolia* (S. M.).—On open pasture lands, near Omeo; 3000 feet; metamorphic soils (principally micaceous schists).
1. *H. Banksii* (F. v. M.).—At head of Victoria River, near Mount Phipps (Dividing Range); altered Silurian formation; 3000 feet.

No. 7—PITTOSPOREÆ (R. Br.).

Genera—Pittosporum and Bursaria.

1. *P. bicolor* (Banks).—A charming species, with handsome glossy sap-green foliage; bi-valved fruit; shaded gullies; along Dividing Range; Silurian soils; 4000 feet; wood useful for ornamental purposes.
1. *B. spinosa* (Cav.).—Sparsely distributed within this area, being confined to open rocky spurs of argillaceous schist; at junction of Livingstone Creek and Mitta Mitta River; 1700 feet. At Tongio, in valley of Tambo River; 1500 feet; it is abundant in granitic soils; and at Bindi, Middle Devonian limestone formation in same valley, it attains a height of 20 feet, with trunk 10 inches in diameter. It does not appear to ascend anywhere in the Omeo district above 4000 feet. It is locally known as kangaroo thorn. Crude potash, crude tar, and acetic acid have been obtained from its wood, according to Mr. Guilfoyle curator of the Botanic Gardens. I have also found the charcoal extremely useful for blow-pipe work.

No. 8—DROSERACEÆ (Salisb.).

Genus—Drosera.

- D. *Arcturi* (F. v. M.).—The only species I have met with of this interesting order is confined to the High Plains, near Mount Cope, 6015 feet, on Silurian soils and basaltic detritus; the glandular hairs margining the leaf render it easily distinguishable.

No. 9—POLYGALEÆ (A. & L. de J.).

Genera—Polygala and Comesperma.

1. *P. sibirica* (L.).—Sparsely distributed on the flats near Hinnomunjie, Mitta Mitta River; 1700 feet; metamorphic schists and alluvium.
1. *C. retusum*.—Widely distributed within the area; on all paleozoic and basaltic soils up to 5000 feet.

No. 10—RUTACEÆ (A. L. de Jussieu).

Genera—Correa, Zieria, Boronia, and Eriostemon (including Croweæ).

1. *C. Lawrenciana* ().—Forms, with *Leptospermum* and

Callistemon, the principal shrub vegetation fringing the margin of the Cobungra, Bundara, and Big Rivers; at elevations of from 3000 to 4000 feet; on metamorphic and basaltic soils. Its strong orange odour and fuchsia-like flowers render it easily recognisable.

1. *Z. Smithie* (And.).—On moist heads of gullies along the Dividing Range, at an elevation of 3000 to 4000 feet, it is most abundant. Its axillary panicles of white scented flowers and trifoliate lanceolar leaves at once distinguish it amid surrounding vegetation; on Silurian soils principally.
1. *B. Algida* (F.v.M.).—Abundant on the rocky ridges intersecting the Bogong High Plains; 5600 feet; on basaltic formation.
2. *B. polygalifolia* (Sm.).—Scrubby spurs of Dividing Range, at head of Livingstone Creek and Victoria River; altered Silurian soils. Its palmately compound leaves distinguish it; the small white and light pink flowers are scented. It ascends to 4000 feet.
1. *E. Crowea Saligna* (F. v. M.).—Abundant on Mount Sisters, near Omeo Plains; metamorphic granite formation. Altitude, 3600 feet.
2. *E. myoporoides* (D. C.); 3. *E. umbellatus* (Turc.).—Both to be met with on Dividing Range, margining Omeo Plains; on quartz porphyry formation; 3000 to 4000 feet.

No. 11—LINEÆ (De Candolle).

Genus—*Linum*.

1. *L. marginale* ().—Abundant on all soils (paleozoic and igneous) during January; ascends to 5000 feet. It has a tenacious bark, useful for paper manufacture.

No. 12—GERANIACEÆ (A. L. de J.).

Genera—*Geranium* and *Pelargonium*.

1. *G. dissectum* (L.).—On Dividing Range, margining Omeo Plains; quartz porphyry formation, and near Omeo on metamorphic schist soils; between 2000 and 4000 feet.

1. *P. Australe* (Wild.).—East of Omeo Plains, near Mount Sisters; quartz porphyry and metamorphic granite formations; 3000 to 4000 feet.

No. 13—STERCULIACEÆ (Vent.).

Genus—*Lasiopetalum*.

1. *L. dasyphyllum* (Sieb.).—On the outskirts of other shrubs; Dividing Range, at head of Livingstone Creek; 3600 feet; Silurian soils. Its flowers are peculiar, and hermaphrodite.

No. 14—URTICEÆ (Ventenat).

Genus—*Urtica*.

1. *U. incisa* (Poir), "common nettle."—On cultivated ground around Omeo, and densely distributed through moist heads of gullies along Dividing Range; humid soils; up to 5000 feet.

No. 15—CASUARINEÆ (Mirbel).

Genus—*Casuarina*.

1. *C. suberosa* (Link).—Limited within the area to the lower undulating ranges margining Omeo Plains, on south side; mica schist formation; 3000 feet.
2. *C. distyla* (F. v. M.).—Forms dense scrub clothing steep ranges at Tongio (along valley of Tambo River); 1000 to 2000 feet; on granitic and argillaceous schist formation; rare in Mitta Mitta source basin.

No. 16—SAPINDACEÆ (A. L. de J.).

Genus—*Dodonæa*.

1. *D. viscosa*.—On Dividing Range, at head of Livingstone Creek and Wentworth River; Silurian formation; ascends to 4500 feet.

No. 17—STACKHOUSIAEÆ (R. Br.).

Genus—*Stackhousia*.

1. *S. linarifolia*.—Abundant on metamorphic schists around Omeo; up to 4000 feet.

No. 18—CARYOPHYLLÆ (Scop.).

Genera—*Stellaria*, *Colobanthus*, and *Scleranthus*.

1. *S. pungeus* (Brogn.).—Is seen to advantage during the dry season, beginning of March, when the grasses are parched; around Omeo; 2300 feet; metamorphic schists.
1. *C. subulatus* ().—This moss-like plant is abundant on the basaltic plateaux of Bogong High Plains and on the lower shelves of altered Silurian rocks; from 4000 to 6000 feet.
1. *Scleranthus biflorus* (Hook.).—Is abundant on the dry, sunny slopes of the eastern watershed of the Livingstone Creek; mica schist formation, it is frequently mistaken for tufts of moss, so similar is its appearance.

II.—CHORIPETALEÆ-PERIGYNÆ.

No. 19—LEGUMINOSEÆ (Haller).

Sub-order No 1—PAPILIONACEÆ.

Genera—*Oxylobium* (And.), *Mirbelia* (Smith), *Gompholobium* (Smith), *Daviesia* (Smith), *Pultenea* (Smith), *Dillwynia* (Smith), *Platylobium* (Smith), *Bossieæ* (Vent.), *Hovea* (R. Br.) *Goodia* (Sals.), *Lotus* (Towns), *Acacia* (Towns).

1. *O. procumbeus* ().—At head of Livingstone Creek granitic soils and metamorphic schists; also High Plains; basaltic formation; 5000 feet.
1. *M. Oxylobium* ().—Open, sunny, northern slopes of Mount Livingstone, near Omeo; gneissose schists; 3500 feet; blooms in January.
1. *C. Heuglii* (Bentham).—On Dividing Range, margining Omeo Plains; quartz porphyries; 3900 feet. It has large yellow flowers.
1. *D. latifolia* (R. Br.).—On Silurian soils along Dividing Range, particularly along the margin of Wentworth River; it forms dense scrub, attaining a height of 20 feet; altitude, 3900 feet.
2. *D. ulicina* (Sm.).—On heathy ranges near Omeo; 3000 feet; metamorphic schists; eastern watershed of Livingstone Creek ("native hop").
3. *D. Buxifolia* (Bent.).—On Dividing Range, at head of

Victoria River, and along Wentworth eastern watershed; on Silurian formation and quartz conglomerates; altitude, 3500 feet.

1. *P. fasciculata* (Bent.).—Restricted to the higher tablelands; basaltic and lower Silurian formations; 5000 feet. This is a charming rose-coloured species.
2. *P. juniperina* (Lat.).—A charming species, abundant at head of Livingstone Creek; orange-coloured flowers.
1. *D. ericefolia* (Sm.).—On coarse conglomerates, sandy soils; along Dividing Range, at heads of Livingstone Creek. This pretty species flourishes at elevations of 3000 to 4000 feet. It is more abundant on Wentworth River source basin.
1. *P. obtusangulum*.—Covering the shaded hill sides; up to 5000 feet; all over the area, particularly on the western watershed of the Livingstone Creek. On metamorphic schists this species is abundant.
1. *B. riparia* (A. C.).—On felsitic rock masses near Omeo this species is most abundant; altitude, 2500 feet. The young plants are edible; stock, especially horses, are fond of it.
2. *B. bracteosa* (F. v. M.).—Forming a dense underscrub on the higher plateaux; basaltic and Silurian formation; at 4500 feet; 3 to 5 feet high.
3. *B. foliosa* (Cunng.).—This is the most elegant of the papilionaceous shrubs to be met with in this district. Its spreading, flattened branches take almost the form of fern fronds. It is abundant on the sunny slopes of Mount Livingstone, 3000 feet, and on tertiary gravels *in situ*.
1. *H. heterophylla* (R. Br.).—Is met with along the banks of the Livingstone Creek; 2200 feet; mica schist formation. Its blue flowers distinguish it.
1. *G. lotifolia* (Salsb.).—The soft trifoliolate leaves and racemes of golden yellow flowers render it easily known. It is sparsely distributed within the area at Tongio Gap, 4000 feet, on altered Silurian soils; south of Dividing Range, on Wentworth River, it is more gregarious and luxuriant.
1. *L. corniculatus* (L.).—On moist situations along the affluents of Livingstone Creek; up to 3000 feet.
2. *L. Australis* (And.).—In similar situations with *L. corniculatus*; ascending to 5000 feet; on metamorphic, Silurian, and basaltic soils; principally along moist margins of watercourses.

Sub-order No. 2—MIMOSEÆ.

Genus—Acacia.

1. *A. myrtifolia* (Willd).—Flourishes on the northern slopes of Mount Livingstone, in the neighbourhood of granite dykes; along western or southern watershed of Dry Gully; auriferous country; 3000 feet.
2. *A. melanoxyton* (R. Br.), locally called "lightwood."—Is dispersed among eucalyptus in eastern watershed of Livingstone Creek; ascends to 4000 feet; on metamorphic soils.
3. *A. discolor* (Willd).—On Dividing Range, at head of Livingstone Creek; 4000 feet; granitic soils; it is sparsely distributed. On Wentworth River it is more gregarious, forming dense underscrub on Silurian soils.
4. *A. decurrens* (Willd).—Is moderately abundant within the area along the upper flat courses of gullies; metamorphic soils; south of Dividing Range it is abundant.
5. *A. pycnantha*, "golden wattle."—Only occasionally to be met with in the area, on Silurian soils; it is prolific on ranges south of Dividing Range; its gum is very transparent.
6. *A. vomeriformis*.—This peculiar shrub is abundant on the coarse sandy soils disintegrated from quartz conglomerate in upper courses of Wentworth River at elevations of 3000 feet. On Dry Gully watershed, near Omeo, it is also to be met with on gneissose schists. Another species, similar in appearance to *A. vomeriformis*, is also to be met with in same habitat.
7. *A. silicuformis* (A. C.).—Is abundant on the gravels along bed of Livingstone Creek; 2000 feet.
8. *A. alpini* (F. v. M.).—Is met with on all elevations above 3000 feet up to 5000 feet, principally on altered Silurian soils.
9. *A. verticillata* (Willd).—In similar habitats to *A. vomeriformis*, particularly in Wentworth River watershed, at elevations of 3000 feet.

No. 20—ROSACEÆ (A. L. de J.).

Genera—*Rubus* and *Alchemilla*.

1. *R. parvifolius* (L.), "native raspberry."—Is abundant on all river margins on rocky bluffs within the area.

12 *Phanerogamia of the Mitta Mitta Source Basin*

1. *A. vulgaris*, "common lady's mantle."—Is met with on Paw Paw Plains, at head of the Victoria River; 4000 feet; basaltic soils.

No. 21—ONAGREÆ (Adanson).

Genus—*Epilobium*.

1. *E. tetragonium* (L.).—On moist, boggy situations along upper courses of Livingstone Creek; 3500 feet, and on higher plateaux up to 5000 feet.

No. 22—SALICARIEÆ (Adanson).

Genus—*Lythrum*.

1. *Salicaria* (L.).—Is found growing on the alluvium of principal streams, particularly south of Dividing Range, on Tambo and Dargo Rivers, at elevations of 1000 to 2000 feet.

No. 23—HALORAGEÆ (R. Br.).

Genus—*Haloragis*.

1. *H. tetragyna* (R. Br.).—A small, herbaceous species; is abundant on the metamorphic schists around Omeo.

No. 24—MYRTACEÆ (Adanson).

Genera—*Bæckea*, *Leptospermum*, *Kunzea*, *Callistemon*, *Eucalyptus*.

1. *B. gunniana* (F. v. M.).—Is abundant on the basaltic tablelands along source runnels, at elevations of 5000 feet.
2. *B. Diffusa* (Lieb.).—Along upper courses of Benambra Creek, on boggy soils; Silurian formation; altitude, 3700 feet.
1. *Leptospermum scoparium* (Forst.).—Along margin of Livingstone Creek and Cobungra River; mica schist formation; altitude, 3000 feet.
2. *L. lanigerum* (Sm.).—In similar habitats to *L. scoparium*; metamorphic schists.
1. *K. parvifolia* (Scha.).—Mount Sisters, Dividing Range margin of Omeo Plains; metamorphic granite; on dry slopes.

1. *C. salignus*, var. *Sieberii* (D. C.).—On the Paw and Precipice Plains; 4000 feet; basaltic formation; more abundant along source runnels; intersecting the higher plateaux of Dargo High Plains, south of Dividing Range; 5000 feet.

EUCALYPTUS.

1. Genus *E. amygdalina*, "white gum," is the most prevalent species; distributed all over the area up to 5000 feet, where it gives place to *C. alpini*—our Alpine species, locally called snow gums.
2. *E. obliqua* "stringy bark."—Sparsely distributed on granitic and coarse argillaceous schist formation, on the northern sunny slopes of the lower ridges and along the crest of the main Dividing Range.
3. *F. melliodora*, "honey-eucalypt, or box."—Is hardly represented north of the Dividing Range; along the valley of the Tambo it is the principal species, remarkable for its ash-grey foliage, the durability and hardness of its timber, and its excellent qualities as fuel. It flourishes in hard granitic and gneissic soils in this watershed.
4. *E. globulus*, "blue gum."—Attains a great height amid the moist southern slopes along the Dividing Range, although not abundant within the area. I have noted trees in the moist gullies, starting from the Tambo Gully, 320 feet high, with leaves lanceolar falcate, fully 2 feet long.
5. *E. fissilis*, "messmate," is moderately distributed along with
6. *E. coriacea*, on lower heathy spurs, near the Dividing Range.
7. *E. viminalis*, "manna gum," is confined to the flats along the Livingstone Creek.
8. *E. stuartina*, is common towards the Omeo Plains, while close to Omeo a rough-barked, black-stemmed, thick-foliaged species, known as "Black Sally," gives character to the landscape.
9. *E. rostrata*, "red gum," and 10, *C. sideroxylun*, "iron bark," are absent from this source basin, unless on the eastern affluents, at lower elevations, as along the Gibbo River.
11. *E. pauciflora* and 12, *E. gunnii*, are shrubby Alpine species, which Baron Müeller has been good enough

to inform me are found amid our Alpine regions, although I have not yet identified them; these are probably locally known as snow-gums, ascending to the edge of the highest plateaux at 6000 feet.

13. *E. stellulata*.—Also a sub-Alpine species. Abundant round Omeo Plains; 3000 feet.

No. 25—RHAMNEÆ.

Genera—*Pomaderris* and *Cryptandra*, including *Spyridium* and *Colletia*, including *Discaria*.

1. *P. apetala* (Labill).—Abundant in heads of gullies with other arboreous shrubs, on south of Dividing Range; all formations; ascends to 4000 feet; its straight stem is said to be used for hop poles in Gippsland.
2. *P. phyllicifolia* (Lod.).—Along margin of Livingstone Creek, near Omeo; 2000 feet; metamorphic schists, sparsely distributed; shrubby.
1. *C. omara* (Sir S. Small).—At head of Livingstone Creek, on sandy soils; 3800 feet. More abundant on quartz conglomerate in Wentworth River watershed; 3000 feet.
1. *S. parirfolium* (F.v.M.).—Along margin of Livingstone Creek; on quartzitic schists, near Omeo; 2200 feet. I have not noted any higher than this.
1. *D. Australis* (Hook.).—Also found growing on metamorphic schists, particularly mica schist, near Omeo; 2000 to 3000 feet. This is a spiney species, easily distinguishable.

No. 26—ARALIACEÆ (Vent.).

Genus—*Panax*.

1. *P. sambucifolias* (Lieb.).—This handsome shrub, with its straight, unbranched stem, and tuft of dark, sap-green foliage, is found in shaded rocky sidelings along Livingstone Creek; 2200 feet. At higher elevations, along the Dividing Range, the leaves become thicker and more succulent; ascends to 4000 feet, principally on metamorphosed Silurian soils.

No. 27—UMBELLIFERÆ (Morison).

Genera—Hydroctyle, Didiscus, and Trachymene.

1. *H. laxiflora* (Towns).—Is common on pasture lands around Omeo; metamorphic soils; 2000 to 3000 feet.
1. *D. homilis* (D. C.).—On the detritus of coarse gneissose soils along Victoria River, at altitude of 3500 feet.
1. *T. billiardierii* (F. v. M.).—On sandy soils at head of Livingstone Creek; 3700 feet; but more abundant on conglomerate detritus along the valley of Wentworth River; 3000 feet.

III.—SYNPETALEÆ-PERIGYNÆ.

No. 28—SANTALACEÆ (R. Br.).

Genera—Leptomoria, Omphacomeria, Exocarpus.

1. *L. aphylla* (R. Br.).—Common on the open northern slopes of Mount Livingstone; 3000 feet; the fruit is succulent and acrid.
2. *O. acerba* (A. de C.).—Confined to the Dividing Range, near Mount Sisters; quartz porphyry formation; at elevations of 3000 to 4000 feet.
1. *E. cupressiformis* (Labill), "cherry-tree."—Is sparsely distributed on undulating ranges near Omeo Plains; more abundant south of Dividing Range.
2. *E. stricta* (R. Br.).—Common all round Omeo, along eastern slopes of Livingstone Creek, up to 3800 feet; metamorphosed Silurian soils.
3. *E. humifusa* (R. Br.).—A prostrate bush, abundant at the higher elevations margining Bogong High Plains; granitic and Silurian formation; also on the basaltic plateaux, up to 6000 feet.
4. *E. nana* (Hook.).—Prostrate shrub, at head of Benambra Creek, and at Mt. Cobberas; 6015 feet, trap form.

No. 29—PROTEACEÆ (A. L. de J.).

Sub-order No. 1—NUMENTACEÆ.

1. *Persoonia juniperina*.—Is abundant along the valley of the Livingstone Creek, on mica schist formation; up to 4000 feet.

2. *P. conteriflora* (Bent.).—Similar habitats to *P. juniperina*.

Sub-order No. 2—TOLLICULARES.

1. *Grevillea miquelania* (F. v. M.).—On Dividing Range, near Mount Tambo; quartz porphyry formation; on rocky ridges; 3500 feet.
2. *G. alpini* (L.).—On undulating ranges (metamorphic soils), all round Omeo, and most abundant on south-eastern watershed of Victoria River; ascends to 4000 feet.
3. *C. parviflora* (R. Br.).—Along the courses of the Livingstone Creek and all eastern afluent of the Mitta Mitta; on altered Silurian soils; up to 4500 feet.
1. *Hakea microcarpa* (R. Br.).—On margin of Livingstone Creek; ascends to 3600 feet.
2. *H. acicularis* (R. Br.).—On the shelves of the higher plateaux; basaltic formation; especially on Dargo High Plains, near Mayford; 4800 feet.
1. *Lomatia longifolia* (R. Br.).—In shaded positions all over ranges near Omeo, both on metamorphic and Silurian soils; ascends to 4000 feet.
2. *L. ilicifolia* (R. Br.).—On shaded gullies and slopes along Dividing Range, principally on Silurian tracts; altitude, 2000 to 4000 feet.
1. *Banksia marginata* (Cav.).—Only sparsely distributed, amid junction of streams; a few at junction of Dry Gully and Livingstone Creek; more abundant at lower elevations on rocky ledges of gneissic schists.

No. 30—THYMELEÆ (A. L. de J.).

Genus—*Pimelea*.

1. *P. glauca* (R. Br.).—Is abundant all over the open ranges on eastern watershed of Livingstone Creek; blooms during February; metamorphic schists.
2. *P. alpina* (F. v. M.).—Is also abundant on elevations up to 6000 feet; principally on basaltic soils; Paw Paw and Precipice Plains.
3. *P. curviflora* ().—Similar habitats to *P. glauca*.
4. *P. ligustrina* (Lab.).—Is here confined to the lower

- source runnels of the higher plateaux; 4000 to 6000 feet; basaltic formation. It is said to contain sudorific and alterative medicinal properties.
5. *P. axiflora* (F. v. M.).—Along shaded slopes, western watershed of Livingstone Creek. Its bark is said to produce a tenacious bast for paper manufacture.
 6. *P. pauciflora* (R. Br.).—Sparsely distributed along with *P. axiflora*, but its bark produces a fine brown dye; more abundant along Dividing Range.

No. 31—RUBIACEÆ (A. L. de J.).

Genera—*Asperula*, *Galium*, *Coprosma*.

1. *Coprosma hirtella* (Lab.).—Along western margin of Livingstone Creek, and on Dividing Range; ascends to 5000 feet; all soils.
2. *C. microphylla* (F. v. M.).—Confined to Dividing Range, Silurian soils, near Tongro Gap; 3600 to 4000 feet; its small leaves and berries distinguish it.
3. *C. pumilla* (Hook.).—Bogong Plains, at an elevation of 5000 feet, on basaltic formation.
1. *Asperula oleaganta* (T. H.).—This small herbaceous plant is abundant on the humid mica schists around Omeo, and ascends to 5000 feet.
1. *Galium Australe* (D. C.).—Also abundant in moist places near Omeo.

No. 32—COMPOSITEÆ (Vall.).

Genera—*Aster*, *Vittadinea*, *Erigeron*, *Brachycome*, *Gnaphalium*, *Leptorynchus*, *Helichrysum*, *Helipterum*, *Cassina*, *Cotula*, *Senecio*.

1. *Brachycome nivalis* (F. v. M.).—During spring this species is abundant all over our sub-Alpine and Alpine elevations.
2. *B. ciliaris* (Lers.).—Is also abundant, particularly at the heads of the Cobungra and Bundara Rivers; Silurian and basaltic soils.
3. *B. radicans* (F. v. M.).—In damp situations along Livingstone Creek.
(*Aster* includes *Olearia* and *Celmisia*.)

1. *A. argophylla* (), "native musk."—Most abundant on Silurian tracts along Dividing Range, where it frequently forms dense scrubs; does not ascend higher than 5000 feet within this basin.
2. *A. myrsinoides* (A. Cun.).—At the lower elevations is a robust shrub; on the higher plateaux almost herbaceous and more gregarious.
3. *A. lepidophylla* (Bent.).—Confined to Livingstone Creek near Omeo; 2000 feet; not forming dense underscrub as along the coast-line on sandy soils.
1. *Vittadina Australis* (A. Rich.).—Abundant on dry slopes of Livingstone Creek near Omeo; 2000 to 3000 feet; quartzitic and gneissose schists.
1. *Erigeron pappochromus* (Labil.).—On the slopes of Mount Cope 6015 feet, and also Mount Hotham 6108 feet. This species when at its greatest luxuriance presents a faded appearance.
1. *Gnaphalium alpigenum* (F. v. M.).—On slopes of Mount Cope this woolly-foliaged plant is abundant.
1. *Leptorhynchus squammatis* (Tess.).—Everywhere abundant during early summer; on all elevations, among open pasture lands; ascends to 5000 feet.

Helichrysum ("everlastings").

14. *H. lucidum* (Henckel), syn. with *H. bracteatum*.—Represented by a narrow-leaved variety around Omeo, and by an Alpine variety at elevations of 5000 to 6000 feet, covering those highlands with fields of bright golden-yellow flowers, giving character to the landscape; basaltic formation.
2. *H. apiculatum* (D. C.).—More abundant on the open ridges near Omeo; up to 3000 feet; mica schists.
3. *H. semipapposum* (D. C.).—All open northern slopes near Omeo; ascends to 5000 feet; principally on metamorphic soils.
4. *H. baccharoides* (F. v. M.).—Restricted to the source runnels intersecting the higher plateaux; basaltic soils; covering acres with a dense undergrowth; altitude 5000 to 6300 feet.
1. *Helipterum incarum* (D. C.).—A variety auriceps; is common on metamorphic schists near Omeo, at elevations of 2000 to 3000 feet, while a white flowered species is restricted to the higher basaltic plateaux, between 5000 and 6000 feet, covering

- portion of the open mossy flats with snowy mantle of beautiful blossoms, giving a distinctively Alpine aspect to the localities, and harmonising with the fields of golden *Helichrysum lucidum*.
2. *H. anthemoides* (D. C.).—Is more abundant at lower elevations, between 3000 and 6000 feet; on all open grassy flats and hill sides.
 1. *Cassina aculeata* (R. Br.).—Forms an arboreous shrub along the Livingstone Creek near Omeo; 2000 feet; restricted to this habitat apparently—*i.e.*, within the area under consideration.
 1. *Cotula alpini*, “native daisies.”—Abundant on the Alpine slopes and terraces; all soils up to 6500 feet; not seen below 2000 feet within this area.
 1. *Senecio Australis* (Wild.); 2. *S. vagus* (F. v. M.).—Both abundant along southern slopes of Dividing Range in moist gullies; on Silurian formation; sparsely distributed within the area at elevations of 3000 to 4000 feet.
 3. *S. pertinatus* (Townsend).—Is to be met with on the higher plateaux.
 4. *S. bedfordia* (Townsend), “native flannel plant.”—This arboreous shrub is thickly distributed amid our sub-Alpine and Alpine slopes, particularly along the Dividing Range. The leaves have been used by packers and others for fodder for horses during the snowy season. After having been cut for a day, horses will eat them readily. It ascends to 5000 feet; on all soils.

No. 33—CAMPANULACEÆ (A. L. de J.).

Genus—*Wahlenbergia*.

Wahlenbergia gracilis (A. de C.).—This pretty species is everywhere abundant all over the area. The flowers are purplish blue on the higher plateaux, and the plant more dwarfed.

No. 34—CANDOLLACEÆ (F. v. M.).

Genus—*Stylidium*.

Stylidium graminifolium (Scharuy).—Equally abundant on the metamorphic schists near Omeo and the higher plateaux. Attains its greatest luxuriance at 4000 feet in basaltic soils.

No. 35—GOODENIACEÆ (R. Br.).

1. *Goodenia ovata* (Sm.).—This species so common along the coast in Gippsland is here restricted to sub-Alpine heights of 3000 feet, on Silurian soils.
1. *Velleia paradoxa* (R. Br.).—Common both on the metamorphic schists around Omeo, and on the tablelands up to 6000 feet.

IV.—SYNPETALÆ-HYPOGYNÆ.

No. 36—GENTIANÆÆ ().

Genera—*Erythræa* and *Gentiana*.

1. *E. Australis* (R. Br.).—Is abundant on ranges around Omeo, and ascends to the basaltic plateaux Bogong High Plains. Its pink flowers arranged in corymbrose panicles render it easily known.
1. *G. Saxosa* ().—More abundant on the higher Alpine slopes and terraces. It differs from *Erythræa* in not leaving the calyx divided at the base, and the anthers not becoming spirally twisted as they wither.

No. 37—SCHROPULARINÆ (Mistel).

Genera—*Gratiola*, *Veronica*, *Euphrasia*.

1. *G. peruviana* (L.).—This small succulent plant is found growing along the moist margins of the principal streams, up to 4000 feet, on alluvium principally. It possesses purgative properties.
1. *V. gracilis* (R. Br.).—On the open sunny slopes near Omeo this blue-flowered species is prevalent; principally on mica schist formation.
2. *V. Derwentii* (And.).—Abundant on all shaded situations, where moisture aids their growth; ascending to Alpine elevations of 5000 feet.
3. *V. perfoliata* (R. Br.).—Most abundant on Dividing Range between Mount Sisters and Mount Tambo east of Omeo Plains, particularly on quartz porphyry

formation, where it is found growing from crevices of the rock. Its sessile, opposite, cordate, smooth and entire margined leaves at once distinguish it.

4. *V. serpilifolia* (L.).—Is to be met with at higher elevations on the western affluence of the Mitta, near Mounts Cope and Wills; 5000 to 6000 feet.
1. *E. speciosa* (R. Br.).—During spring the fields around Omeo are covered with this pretty puce-flowered species. It ascends to 4000 feet on all soils.
2. *E. scabra* (R. Br.).—Alike abundant on all soils; between 3000 and 6000 feet. Its yellow flowers distinguish it.
3. *E. Brownii* (R. Br.).—Is most abundant at the highest elevations near Mount Fainter and Mount Bogong; 5000 to 6500 feet; all soils.

No. 38—*ASPERFOLIÆ* ().

Genera—*Mysotes* and *Cynoglossum*.

1. *M. sauvcogens* (R. Br.).—Along the banks of the Livingstone Creek near Omeo, its scorpioid racemes of yellow flowers render it easily distinguishable. It is most prolific on the detritus of felsitic rocks.
1. *C. sauvcogens* (R. Br.).—On metamorphic soils along the lower valley of Livingstone Creek. The nuts of this species are muricated and depressed externally.

No. 38—*LABIATÆ* (Adam.).

Genera—*Mentha*, *Prostanthera*, *Azuga*.

1. *M. Australis* (R. Br.), "native mint."—Distributed in moderate patches along the margins of the principal streams; all soils; up to 4000 feet.
1. *P. lasianthos* (Labill.).—Is here confined to the Dividing Range at heads of gullies; on Silurian soils; principally at an elevation of 3800 feet.
2. *P. phylcifolia* (F. v. M.).—Along the margin of the Cobungra River on gneissose schists; 3500 feet.
3. *P. rodundifolia* (R. Br.).—On alluvial river flats between 2000 and 3000 feet within the area.

1. *A. Australis* (R. Br.).—This succulent, herbaceous species, is abundant all over the area on all soils up to 4000 feet. It becomes dwarfed and procumbent at the higher elevations.

No. 39—EPACRIDACEÆ (R. Br.).

Genus—*Styphelia* (Epacris).

(In arranging the species of this important order, I have adopted Baron von Mueller's generic system, as given in his recently published and valuable work on *Census of the Genera of Plants Hitherto Known as Indigenous to Australia*, 1881.)

1. *Styphelia humifusa* (Labill).—On metamorphic soils on the undulating ranges east of Omeo; 2200 feet; rather procumbent.
2. *S. lanceolatus* (R. Br.).—Dividing Range at head of Livingstone Creek on Silurian soils; 4000 feet, and at lower elevations.
3. *S. virgatus* (R. Br.).—Similar habitats to *Lanceolatus*; grows, also, on metamorphic soils near Omeo.
4. *Styphelia serrulata*.—Is equally abundant on the heathy ridges and the lower, more open, and rolling pasture hills; it gives relief to the parched appearance of the latter during the end of summer, giving a variegated verdant aspect to the browned surface. Its principal habitats are the watersheds of the Livingstone Creek and Victoria River, ascending to 4000 feet in all soils.
5. *S. scoparia*.—This bushy species is met with along the Dividing Range. Most abundant at elevations of 3000 to 4000 feet.
6. *S. Frazeri* (R. Br.).—On the lower rounded ranges near junction of Livingstone Creek and Mitta Mitta River; on argillaceous mica schists principally.
7. *S. montana* (R. Br.).—On Dividing Range at head of Livingstone Creek, at contact of granitic and Silurian rock masses.
1. *E. impressa* (Lab.).—This charming heath-like species with its varying tints of crimson, pink, and white, is here most prolific on sandy soils south of the Dividing Range; within the Mitta Mitta Source Basin it is but sparsely distributed.

E. microphylla (R. Br.).—Is abundant at the heads of the Livingstone Creek, granitic formation, and along the upper courses of Benambra Creek; at elevations of 3000 to 4000 feet; on alluvial flats, Silurian formation.

No. 40—ERICACEÆ.

The order to which the true heaths belong is represented by the genus *Gaultheria hispida*, a stiff branching Alpine shrub, luxuriant amid the basaltic soils on the higher plateaux, blooming during December and January.
